

CLAIMS

We claim:

1. An apparatus for supporting at least first and second couplers for removable coupling to at least first and second coupling positions on a body of a recipient during at least one of therapy administration and recipient monitoring, the apparatus comprising a U-shaped support member configured to rest on the recipient, the U-shaped support member having a first coupler support portion positioned on a first leg of the U-shaped support member and a second coupler support portion positioned on a second leg of the U-shaped support member, wherein the first coupler support portion is configured to be positioned proximate to the first coupling position of the body of the recipient and removably carry the first coupler, and wherein the second coupler support portion is configured to be positioned proximate to the second coupling position of the body of the recipient and removably carry the second coupler, the U-shaped support member being spaced apart from the first and second coupling positions when resting on the body of the recipient.
2. The apparatus of claim 1, wherein the first coupler support portion is configured to accommodate movement of the first coupler between a first carried position with the first coupler carried by the first coupler support portion and a first coupled position with the first coupler operatively coupled to the recipient at the first coupling position, and wherein the second coupler support portion is configured to accommodate movement of the second coupler between a second carried position with the second coupler carried by the second coupler support portion and a second coupled position with the second coupler operatively coupled to the recipient at the second coupling position.
3. The apparatus of claim 1, further comprising:
 - a first engagement member depending from the support member at the first coupler support portion and configured to removably engage the first coupler; and
 - a second engagement member depending from the support member at the second coupler support portion and configured to removably engage the second coupler.

4. The apparatus of claim 1, further comprising:
the first coupler; and
a flexible cable connected between the first coupler and the support member, the flexible cable remaining connected between the first coupler and the support member when the first coupler is moved between a first carried position with the first coupler carried by the first coupler support portion and a first coupled position with the first coupler operatively coupled to the recipient at the first coupling position.
5. The apparatus of claim 1, wherein the support member includes a plurality of coupler support portions including the first and second coupler support portions and numbering greater than the first and second coupler support portions, wherein each of the plurality of coupler support portions is configured to be positioned proximate to a corresponding coupling position on the body of the recipient, and wherein an outline of the coupling positions defines a first shape and an outline of the coupler support portions defines a corresponding second shape at least generally similar to the first shape.
6. The apparatus of claim 1, wherein the support member includes a deformable member extending at least proximate to the first and second coupler support portions, wherein the deformable member is bendable from a first shape to a second shape and configured to at least generally maintain its shape after being bent.
7. An apparatus for supporting couplers for removable coupling to a recipient during at least one of therapy administration and recipient monitoring, the apparatus comprising:
a support member configured to rest on a body of the recipient, the support member having first and second elongate leg portions extending away from an intermediate portion and at least partially facing each other, the first elongate leg portion having a first coupler support portion configured to be positioned proximate to a first coupling position on the body of the recipient and the second elongate leg portion having a second coupler support portion configured to be positioned proximate to a second coupling position on the body of the recipient;

a first engagement member configured to removably engage a first coupler at the first coupler support portion of the support member, wherein the first coupler is movable between a first engaged position with the first coupler engaged by the first engagement member and a first coupled position with the first coupler operatively coupled to the recipient at the first coupling position; and

a second engagement member configured to removably engage a second coupler at the second engagement portion of the support member, wherein the second coupler is movable between a second engaged position with the second coupler engaged by the second engagement member and a second coupled position with the second coupler operatively coupled to the recipient at the second coupling position, the first engagement member configured to be positioned closer than the second engagement member to the first coupling position.

8. The apparatus of claim 7, further comprising:

the first coupler, wherein the first coupler has an electrical contact configured to be connected to a percutaneous electrical probe inserted into the recipient at the first coupling position; and

a flexible cable connected between the first coupler and the support member, the cable remaining connected between the first coupler and the support member when the first coupler is moved from the first engaged position to the first coupled position.

9. The apparatus of claim 7, further comprising:

the first coupler, wherein the first coupler has an electrical contact configured to be connected to a percutaneous electrical probe inserted into the recipient at the first coupling position; and

a flexible cable connected between the first coupler and the first elongate leg portion of the support member proximate to the first engagement member, the cable remaining connected between the first coupler and the support member when the first coupler is moved from the first engaged position to the first coupled position.

10. The apparatus of claim 7, wherein the support member is flexible and resilient to conform to a surface of the body.

11. The apparatus of claim 7, wherein the support member includes a central axis positioned between the first and second elongate leg portions, wherein the support member further includes a plurality of engagement members including the first and second engagement members and numbering greater than the first and second engagement members, wherein the plurality of engagement members are arranged in two rows on opposite sides of the central axis, and wherein each of the plurality of engagement members is configured to be positioned proximate to a coupling position on the body of the recipient.

12. The apparatus of claim 7, wherein the support member includes a central axis positioned between the first and second elongate leg portions, wherein the support member further includes a plurality of engagement members including the first and second engagement members and numbering greater than the first and second engagement members, wherein the plurality of engagement members are arranged in two at least generally parallel rows on opposite sides of the central axis, and wherein each of the plurality of engagement members is configured to be positioned proximate to a coupling position on the body of the recipient.

13. The apparatus of claim 7, wherein the first engagement member is configured to carry the first coupler having an electrically conductive clamp.

14. The apparatus of claim 7, wherein the first engagement member is configured to carry the first coupler having an actuator tool configured to insert a percutaneous electrode in the recipient.

15. An apparatus for supporting couplers for removable coupling to a recipient during at least one of therapy administration and recipient monitoring, the apparatus comprising a

support member configured to rest on a body of the recipient, the support member having a first coupler support portion configured to be positioned proximate to a first coupling position of the body of the recipient, the support member further having a second coupler support portion configured to be positioned proximate to a second coupling position of the body of the recipient, the first coupler support portion being configured to removably carry a first coupler, the second coupler support portion being configured to removably carry a second coupler, and wherein the support member includes a deformable member positioned at least proximate to the first and second coupler support portions, the deformable member being bendable from a first shape to a second shape and configured to at least generally maintain its shape after being bent.

16. The apparatus of claim 15, wherein the first coupler support portion is configured to accommodate movement of the first coupler between a first carried position with the first coupler carried by the first coupler support portion and a first coupled position with the first coupler operatively coupled to the recipient at the first coupling position, and wherein the second coupler support portion is configured to accommodate movement of the second coupler between a second carried position with the second coupler carried by the second coupler support portion and a second coupled position with the second coupler operatively coupled to the recipient at the second coupling position.

17. The apparatus of claim 15, wherein the first coupler support portion includes an engagement member configured to releasably support the first coupler, and wherein the apparatus further comprises a flexible cable configured to be connected between the first coupler and the support member, the cable remaining connected between the first coupler and the support member when the first coupler is moved from the first carried position to the first coupled position.

18. The apparatus of claim 15, wherein the support member includes a first flexible material having a first durometer, and wherein the deformable member is encased in a second flexible material having a second durometer greater than the first durometer.

19. The apparatus of claim 15, wherein the first and second coupler support portions are two of a larger plurality of coupler support portions, wherein each of the larger plurality of coupler support portions is configured to be positioned proximate to a corresponding one of a larger plurality of coupling positions including the first and second coupling positions, and further wherein an outline of the coupling positions defines a first shape and an outline of the coupler support portions defines a corresponding second shape at least generally similar to the first shape.

20. The apparatus of claim 15, wherein the support member includes first and second elongate leg portions at least generally arranged in a U-shape, and wherein the deformable member extends at least proximate to the first and second elongate leg portions.

21. An apparatus for supporting a plurality of percutaneous probe couplers in position for removable coupling to a recipient, the apparatus comprising:

- a support member configured to rest on a body of the recipient, the support member including a deformable member bendable from a first shape to a second shape and configured to at least generally maintain its shape after being bent;

- a first engagement member depending from the support member and configured to be positioned proximate to a first coupling position on the body;

- a first coupler removably engaged with the first engagement member;

- a first electrical cable attached between the first coupler and the support member;

- a second engagement member depending from the support member and configured to be positioned proximate to a second coupling position on the body of the recipient, the first engagement member configured to be positioned closer than the second engagement member to the first coupling position and the second engagement member configured to be positioned closer than the first engagement member to the second coupling position;

- a second coupler removably engaged with the second engagement member; and

- a second electrical cable attached between the second coupler and the support member.

22. The apparatus of claim 21, wherein the first electrical cable is attached to the support member at a first attachment location and the second electrical cable is attached to the support member at a second attachment location, and wherein the first and second electrical cables are bundled together within the support member and exit the support member adjacent to each other at a third attachment location.

23. An apparatus for administering therapy to a recipient, monitoring the recipient, or administering therapy and monitoring the recipient, the apparatus comprising:

- a support member configured to rest on a body of the recipient, the support member including a deformable member configured to facilitate shaping of the support member to fit a contour of a body of the recipient, the support member having a first coupler support portion configured to be positioned proximate to a first coupling position of the body of the recipient, the support member further having a second coupler support portion configured to be positioned proximate to a second coupling position of the body of the recipient;

- a first coupler configured to be operatively coupled to the body at a first coupling position and removably supported at the first coupler support portion;

- a second coupler configured to be operatively coupled to the body at a second coupling position and removably supported at the second coupler support portion;

- a recipient care unit configured to deliver therapy to the recipient, monitor a condition of the recipient, or deliver therapy and monitor a condition of the recipient;

- a first link between the care unit and the first coupler; and

- a second link between the care unit and the second coupler.

24. An apparatus for supporting at least first and second couplers for removable coupling to at least first and second coupling positions on a body of a recipient during at least one of therapy administration and recipient monitoring, the apparatus comprising:

- a support member configured to be positioned on the recipient, the support member having a first coupler support portion configured to be positioned proximate to the first coupling position of the body of the recipient and removably carry the first coupler, the support

member further having a second coupler support portion configured to be positioned proximate to the second coupling position of the body of the recipient and removably carry the second coupler; and

an attachment device depending from the support member and configured to extend at least partially around the body of the recipient to releasably hold the support member in position on the recipient at least proximate to the first and second coupling positions.

25. The apparatus of claim 24, wherein the first coupler support portion is configured to accommodate movement of the first coupler between a first carried position with the first coupler carried by the first coupler support portion and a first coupled position with the first coupler operatively coupled to the recipient at the first coupling position, wherein the second coupler support portion is configured to accommodate movement of the second coupler between a second carried position with the second coupler carried by the second coupler support portion and a second coupled position with the second coupler operatively coupled to the recipient at the second coupling position, and wherein the attachment device includes a first portion extending from the support member in a first direction and a second portion extending from the support member in a second direction opposite to the first direction.

26. The apparatus of claim 24, wherein the attachment device includes a first flexible strap portion extending from the support member in a first direction and a second flexible strap portion extending from the support member in a second direction opposite to the first direction, wherein each of the first and second strap portions include distal ends configured to releasably engage each other to form a continuous strap around the recipient.

27. An apparatus for administering therapy to a recipient, monitoring the recipient, or administering therapy and monitoring the recipient, the apparatus comprising:

coupling means for removable coupling to a coupling position on a body of the recipient;

carrying means for removably carrying the coupling means on the body of the recipient proximate to the coupling position; and

connecting means for connecting the coupling means to the carrying means when the coupling means are moved between a first carried position with the coupling means carried by the carrying means and a first coupled position with the coupling means operatively coupled to the recipient at the first coupling position.

28. The apparatus of claim 27, further comprising recipient care means for delivering therapy to the recipient, monitoring a condition of the recipient, or delivery therapy and monitoring a condition of the recipient, wherein the connecting means include conducting means for transmitting electrical signals from the recipient care means to the recipient when the coupling means are removably coupled to the recipient.

29. The apparatus of claim 27, wherein the coupling means are configured to be removably coupled to a percutaneous electrical probe inserted into the recipient at the coupling position.

30. The apparatus of claim 27, wherein the coupling means include at least first and second couplers, the first coupler configured to be removably coupled to a first coupling position on the body of the recipient, and the second coupler configured to be removably coupled to a second coupling position on the body of the recipient, and wherein the carrying means are configured to carry the first coupler proximate to the first coupling position and the second coupler proximate to the second coupling position.

31. A method for at least one of administering therapy to a recipient and monitoring the recipient, the method comprising:

removably positioning at least one coupler on a conformable support member;
bending at least a portion of the support member to make the support member at least generally conform to a contour of a body of the recipient;

positioning the support member on the body of the recipient;

removing the at least one coupler from the support member; and

removably coupling the at least one coupler to a coupling position on the body of the recipient at least proximate to the positioned support member.

32. The method of claim 31, wherein removably positioning the at least one coupler on the conformable support member includes removably positioning a first coupler on a first elongate portion of the support member, and wherein the method further comprises removably positioning a second coupler on a second elongate portion of the support member spaced apart from the first elongate portion.

33. The method of claim 31, wherein removably positioning the at least one coupler on the conformable support member includes removably positioning a first coupler on a first elongate portion of the support member, wherein the method further comprises removably positioning a second coupler on a second elongate portion of the support member spaced apart from the first elongate portion, and wherein bending the at least a portion of the support member includes bending the first and second elongate portions of the support member to make them at least generally conform to a shoulder region of the recipient.

34. The method of claim 31, wherein removably positioning the at least one coupler on the conformable support member includes removably positioning a first coupler on a first engagement member depending from the support member and removably positioning a second coupler on a second engagement member depending from the support member, the second engagement member being spaced apart from the first engagement member, and wherein removably coupling the at least one coupler to the coupling position on the body of the recipient includes removably coupling the first coupler to a first coupling position at least proximate to the first engagement member and removably coupling the second coupler to a second coupling position at least proximate to the second engagement member.

35. A method for coupling at least one of therapy equipment and monitoring equipment to a recipient, the method comprising:

positioning first and second legs of a U-shaped support member against a body of a recipient proximate to a coupling area of the body and spaced apart from first and second coupling positions in the coupling area;

supporting a first coupler relative to the body at a first coupler support portion of the first leg of the support member proximate to the first coupling position;

supporting a second coupler relative to the body at a second coupler support portion of the second leg of the support member proximate to the second coupling position;

removing the first coupler from the first coupler support portion of the first leg of the support member and coupling the first coupler to the body at the first coupling position; and

removing the second coupler from the second coupler support portion of the second leg of the support member and coupling the second coupler to the body at the second coupling position.

36. The method of claim 35, wherein positioning the first and second legs of the support member includes positioning a first elongate portion of the support member at least generally on one side of a spine of the recipient, and positioning a second elongate portion at least generally on the other side of the spine of the recipient.

37. A method for administering percutaneous electrical therapy to a recipient, the method comprising:

positioning first and second legs of a U-shaped flexible support member against a body of the recipient proximate to a coupling area having first and second coupling positions;

supporting a first coupler relative to the body at a first coupler support portion of the first leg of the support member proximate to the first coupling position;

supporting a second coupler relative to the body at a second coupler support portion of the second leg of the support member proximate to the second coupling position, the

first coupler support portion being positioned closer than the second coupler support portion to the first coupling position;
removing the first coupler from the first coupler support portion of the first leg and electrically coupling the first coupler to a first percutaneous probe positioned in the body at the first coupling position;
removing the second coupler from the second coupler support portion of the second leg and electrically coupling the second coupler to a second percutaneous probe in the body at the second coupling position; and
electrically coupling the first and second couplers to a source of electrical potential.

38. The method of claim 37, further comprising orienting the support member with an arrangement of the first and second coupler support portions corresponding at least generally to an arrangement of the first and second coupling positions.

39. A method for manufacturing a flexible carrier in which at least one flexible member is carried, the method comprising:

forming a first portion of the flexible carrier from a first quantity of elastic material, the first portion having a channel;

positioning at least a portion of the flexible member in the channel;

forming a second portion of the flexible carrier by disposing an at least partially uncured second quantity of elastic material in the channel to at least partially cover the portion of the flexible member positioned in the channel; and

at least partially curing the second material to bond the second portion of the flexible carrier to the first portion of the flexible carrier.

40. The method of claim 39, wherein forming the first portion of the flexible carrier includes filling a first mold assembly with the first quantity of elastic material when the first quantity of elastic material is at least partially uncured, and wherein the method further comprises:

curing the first quantity of elastic material; and

positioning the first portion of the flexible carrier in a second mold assembly to receive the at least partially uncured second quantity of elastic material in the channel to at least partially cover the portion of the flexible member positioned in the channel.

41. The method of claim 39, wherein forming the first portion of the flexible carrier includes filling a first mold assembly with the first quantity of elastic material when the first quantity of elastic material is at least partially uncured, the first mold assembly having a first cross-sectional shape, and wherein the method further comprises:

curing the first quantity of elastic material;

positioning the first portion of the flexible carrier in a second mold assembly having a second cross-sectional shape smaller than the first cross-sectional shape; and

compressing at least part of the first portion against the second mold assembly to seal the channel and contain the at least partially uncured second quantity of elastic material in the channel during curing of the second quantity of elastic material.

42. The method of claim 39, wherein positioning the at least a portion of the flexible member in the channel includes positioning at least a portion of a deformable member in the channel, wherein the deformable member is bendable from a first shape to a second shape and is configured to at least generally maintain its shape after being bent.

43. The method of claim 39, wherein forming the first and second portions of the flexible carrier includes forming the first and second portions from elastic materials having durometers from about 55 Shore A to about 87 Shore A, or from about 40 Shore D to about 50 Shore D.

44. A method for manufacturing a flexible support member configured to rest on a body of a recipient during at least one of therapy administration and recipient monitoring, the support member configured to support at least first and second couplers for removable

coupling to at least first and second coupling positions on the body of the recipient, the method comprising:

at least partially filling a mold assembly with an at least partially uncured first quantity of elastic material to form a first portion of the support member, the first portion including at least a first channel and first and second engagement members, wherein the first engagement member is configured to releasably carry the first coupler and the second engagement member is configured to releasably carry the second coupler;

positioning at least a portion of a first link in the first channel; and

disposing an at least partially uncured second quantity of elastic material in the channel to form a second portion of the support member and at least partially cover the portion of the first link in the channel.

45. The method of claim 44, wherein at least partially filling the mold assembly with the at least partially uncured first quantity of elastic material to form the first portion of the support member includes forming the first and second engagement members in the shape of cylinders projecting outwardly from the first portion of the support member, the cylinders configured to be removably received in openings in the first and second couplers.

46. The method of claim 44, further comprising positioning at least a portion of a deformable metallic member in the first channel, the deformable metallic member including a metal core with an elastic jacket covering the metal core, wherein the deformable metallic member is bendable from a first shape to a second shape and is configured to at least generally maintain its shape after being bent.

47. The method of claim 16, wherein disposing the at least partially uncured second quantity of elastic material includes injecting the second quantity of elastic material having a durometer from about 55 Shore A to about 87 Shore A, or from about 40 Shore D to about 50 Shore D, into the first channel.

48. A method for manufacturing a conformable support member configured to rest on a body of a person, the method comprising:

forming a first portion of the support member from a first elastic material, the first portion having at least a first channel;

positioning at least a portion of a first elongate flexible member in the first channel;

positioning at least a portion of an elongate deformable member in the first channel, the elongate deformable member being bendable from a first shape to a second shape and configured to at least generally maintain its shape after being bent;

forming a second portion of the support member by disposing an uncured portion of a second elastic material in the channel to at least partially cover the at least a portion of the first elongate flexible member and the at least a portion of the elongate deformable member; and

curing the second material to bond the second portion of the support member to the first portion of the support member.

49. The method of claim 48, wherein forming the first portion of the support member includes forming the first portion in a U-shape with the first channel having an at least generally similar U-shape.

50. The method of claim 48, wherein forming the first portion of the support member includes forming the first portion from the first elastic material having a durometer from about 55 Shore A to about 87 Shore A, or from about 40 Shore D to about 50 Shore D, and wherein forming the second portion of the support member includes forming the second portion from the second elastic material having a durometer from about 55 Shore A to about 87 Shore A, or from about 40 Shore D to about 50 Shore D.